Course Outline Template

Department of Electrical and Electronic Engineering

Course Code: PHY1121 Section: A
Course Title: Electricity, Magnetism and Optics
Course Teacher: Md. Ariful Islam Nahid

No.	CO Statement
CO1	Understand the basic laws of electrostatics, electromagnetism, waves and theory of light.
CO2	Apply ideas to solve electrostatics and electromagnetism related problems.
CO3	Explain the generation process of thermoelectricity and select materials for thermoelectricity.

CO No.	Corresponding PO	Domain and Level of Learning Taxonomy	Delivery Methods	Assessment Tools
CO1	PO1: Engineering Knowledge	Cognitive: Level 2 (Understand)	☒ Lecture ☒ Tutorial ☐ Discussion ☒ Interaction ☐ Audio/Video	☒ Class Test ☒ Quiz ☒ Assignment ☒ Final Exam ☐Project
CO2	PO2: Analysis, PO3: Design/ Development	Cognitive: Level 3 (Apply)	☒ Lecture ☒ Tutorial ☐ Discussion ☒ Interaction ☐ Audio/Video	☒ Class Test ☒ Quiz ☒ Assignment ☒ Final Exam ☐Project
CO3	PO1:Engineering Knowledge	Cognitive: Level 2 (Understand)	☒ Lecture ☒ Tutorial ☐ Discussion ☒ Interaction ☐ Audio/Video	☒ Class Test ☒ Quiz ☒ Assignment ☒ Final Exam ☐Project

Lesson Plan

Week	Topics to be Covered	Assessment	CO map.
1	**E**lectrostatics, applications of electrostatics, postulates of electrostatics, properties of electric charge, methods of charging, Coulomb's law for discrete and continuously distributed charges.		CO1
2	The electric field due to a point charge, electric field due to an electric dipole, a dipole in an electric field.	Assignment -1	CO1
3	Gauss's law, deduction of Coulomb's law from Gauss's law, application of Gauss's law.		CO1 CO2
4	Electric flux, electrical potential, electric potential due to charge distribution.	Assignment -2	CO1
5	Capacitance of the parallel plate capacitor, electric field between charged plates, dielectrics, energy stored in a charged capacitor and energy density.		CO1
6	Magnetostatics, fundamental postulates, Lorentz force, Biot Savart's law.	Class Test-1	
7	Magnetic force on a current-carrying wire, torque on a current loop, Ampere's law.		
8	Magnetic dipole, magnetization, magnetic field intensity and relative permeability.		
9	Electromagnetic induction, Faraday's law of electromagnetic induction, Lenz's law, self induction and mutual induction.		CO1
10	Induction and energy transfer, energy stored in a magnetic field, energy density in a magnetic field.	Class Test-2	CO2
11	Thermoelectric effect**,** Seebeck effect , Peltier effect thermal electromotive forces, laws of addition of thermal electromotive forces.		CO3
12	Thermoelectric equations and power, practical thermocouple, illumination laws, various kinds of lamps.	Quiz-1	CO3
13	Review		
		Final Exam	

Text book:

1. Fundamental of Physics: Halliday, Resnick and Walker

Assessment Strategy:

Assessment	Marks Distribution
Attendance	10%
Assignment	5%
Class test	10%
Quiz	5%
Final Exam	70%
Total	100%